- SANITARY SEWER: Pipe: Use solid-core, SDR-35, ASTM D3034 (or approved equal) Polyvinyl Chloride (PVC) Plastic Pipe for all designated PVC sanitary sewer services. Joints for all sanitary sewer shall have push-on joints with elastomeric gaskets. Use of solvent cement joints is allowed for building services. Solvent cement joints in PVC pipe must include use of a primer which is
- of contrasting color to the pipe and cement. Pipe with solvent cement joints shall be joined with PVC cement conforming to ASTM D2564. Lay all PVC pipe on a continuous granular bed. Installation must comply with ASTM D2321.
- 2. <u>Cleanouts</u>: Install cleanouts on all sanitary sewer services. The distance between cleanouts in horizontal piping shall not exceed 100 feet for pipes 4-inch and over in size. Cleanouts shall be of the same nominal size as the pipes they serve. Include frost sleeves and concrete frame and pipe support. Install a meter box frame and solid lid (Neenah R-1914-A, or
- Testing: Pressure test all sanitary sewer Test all flexible sanitary sewer lines for deflection after the sewer line has been installed and backfill has been in place for at least 30 days. No pipe shall exceed a deflection of 5%. If the test fails, make necessary repairs and retest.

approved equal) over all cleanouts.

- 4. Unless otherwise indicated, use reinforced, precast, concrete maintenance holes conforming to ASTM C478, furnished with precast bases. Sanitary sewer maintenance holes shall be supplied with pre-formed inverts and flexible neoprene sleeve connections for all lateral lines 375 mm (15 inches) in diameter or less, unless otherwise indicated. Joints for all precast maintenance hole sections shall have confined, rubber "0"—ring gaskets in accordance with ASTM C923. The inside barrel diameter shall not be less than 48 inches.
- 5. Install flexible watertight frame/chimney seals on all sanitary sewer maintenance holes. Use either Manufactured Maintenance Hole Frame/Chimney Seals or Elastomeric Waterproofing Frame/Chimney
- 6. Use Neenah Foundry Co. R-1642 casting with self-sealing, solid, type B lid, or approved equal, on all sanitary sewer maintenance holes. Covers shall bear the "Sanitary Sewer" label.
- TRACER WIRE: Locating requirements a means to locate buried underground exterior non metallic sewers/mains must be provided with tracer wire or other methods in order to be located in accord with the provisions of the Wisconsin Statutes 182.0175(2r) and the Wisconsin DSPS 382.30(11)(h).

## EXISTING ELECTRIC TO BE VERIFIED PRIOR TO EXISTING PROPERTY LINE CONSTRUCTION (TO BE REMOVED) PROPOSED GAS (COORDINATE FINAL LOCATION ELECTRIC LINE PER PLAN WITH LOCAL UTILITY) PROPOSED 12" PUBLIC WATER MAIN (SEE SHEET SP4,1) CAUTION PROPOSED 6" WATER 172.7 LF @ 1.33% PROPOSED 6" GATE -SANITARY FORCE MAIN PER PLAN, 6" IE 102.70 PROPOSED TRANSFORMER (COORDINATE FINAL LOCATION WITH LOCAL UTILITY) PROPOSED CLEANOUT PROPOSED 6" WATER P.O.C. 6" IE 105.00 CAUTION (NOTE: CONFIRM SIZE WITH CONVENIENCE STORE KWIK TRIP'S FIRE SPRINKLER CONSULTANT) FF - 112.00 PROPOSED 6" SANITARY P.O.C. 6" IE 105.00 PROPOSED 238.0 LF - 6" SANITARY SEWER @ 2.97 % 🗸 CLEANOU1 CONNECT PROPOSED 6" SANITARY AT 6" IE 97.92 (VERIFY PRIOR TO CONSTRUCTION) CONCRETE RAISE MANHOLE TO FINAL GRADE, REBUILD CHIMNEY, AND REPLACE FRAME AND COVER PER CITY SPECIFICATIONS. GRAPHIC SCALE ( IN FEET )

- GENERAL:
- 1. Comply with the work safety practices specified by the Occupational Safety and Health Administration (OSHA). Comply with all applicable local, state, and federal safety regulations. OSHA prohibits entry into "confined spaces," such as manholes and inlets (see 29 CFR Section 1910.146), without undertaking certain specific practices and procedures. Construction safety is solely the responsibility of the Contractor, who is also solely responsible for the means, methods. and sequencing of the construction operations.
- 2. Existing boundary, location, topographic, and utility information shown on this plan is from a field survey by R.A. Smith National Inc., dated February 17, 2015.
- 3. Perform all utility work in accordance with State and City requirements.
- 4. Connect to existing sanitary sewer MH's by coredrilling. Connect to existing storm sewer MH's by either sawcutting or coredrilling. Use saws or drills that provide water to the blade. Meet all City standards and specifications for the the connection. Reconstruct inverts after installation. Use water stop gaskets in order to provide watertight seals when penetrating a structure wall with a pipe. Take measurements before beginning construction to ensure that service connections do not cut into maintenance access structure joints or pipe barrel joints.
- 5. Perform trench excavations for all utilities in accordance with the requirements of O.S.H.A. 29 CFR, Part 1926, Subpart P, "Excavations and Trenches." (www.osha.gov)
- 6. Coordinate building utility connection locations at 5 ft. out from the proposed building with the with the interior plumbing contractor prior to construction. Verify water and sewer service locations and elevations with the Mechanical Engineer prior to construction.
- 7. The subsurface utility information shown on this plan is utility Quality Level D. This quality level was determined according to the quidelines of CI/ASCE 38-02, entitled "Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data."
- 8. The locations of existing utilities shown on this plan are from record information. The Engineer does not guarantee that all existing utilities are shown or, if shown, exist in the locations indicated on the plan. It is the Contractor's responsibility to ascertain the final vertical and horizontal location of all existing utilities (including water and sewer lines and appurtenances). Notify the Engineer of any discrepancies.
- 9. Contact utility companies for locations of all public and private utilities within the work area prior to beginning construction. Contact Digger's Hotline at (414) 259-1181 in the Milwaukee Metro

- Area, or 1-800-242-8511 elsewhere in Wisconsin for exact locations of existing utilities at least 72 hours (not including weekends and holidays) before beginning any construction. Obtain ticket number and meet with representatives of the various utilities at the site. Provide the Owner with the ticket number information. Digger's Hotline is a free service that locates municipal and utility company lines, but does not locate private utility lines. Use an independent locator service or other means in order to obtain locations of private utility lines including, but not limited to, underground electric cables, telephone, TV, and lawn sprinkler lines.
- 10. Pothole to verify the positions of existing underground facilities at a sufficient number of locations in order to assure that no conflict with the proposed work exists and that sufficient clearance is
- 11. Where existing gas, electric, cable, or telephone utilities conflict with the Work, coordinate the abandonment, relocation, offset, or support of the existing utilities with the appropriate local utility companies. Coordinate new gas meter and gas line installation, electric meter and electric service installation, cable service, and telephone service installation with the local utility companies.
- 12. Arrange for and secure suitable disposal areas off—site. Dispose of all excess soil, waste material, debris, and all materials not designated for salvage. Waste material and debris includes trees, stumps, pipe, concrete, asphaltic concrete, cans, or other waste material from the construction operations. Obtain the rights to any waste area for disposal of unsuitable or surplus material either shown or not shown on the plans. All work in disposing of such material shall be considered incidental to the work. All disposal must conform to applicable solid waste disposal permit regulations. Obtain all necessary permits at no cost to the OWNER.
- 13. Straight line saw—cut existing bituminous or concrete surfacing at the perimeter of pavement removal areas. Use saws that provide water to the blade. Tack, and match all connections to existing bituminous pavement.
- 14. Relocate overhead power, telephone, and cable lines as required.
- 15. All materials required for this work shall be new material conforming to the requirements for class, kind, grade, size, quality, and other details specified herein or as shown on the Plans. Do not use recycled or salvaged aggregate, asphaltic pavement, crushed concrete, or scrap shingles. Unless otherwise indicated, the Contractor shall furnish all required materials.
- 16. Restore the public right-of-way. Replace any concrete curb and gutter, bituminous pavement, sidewalk, or vegetative cover damaged

- by the construction activity. Restore damaged turf with sod within the public right-of-way. The work area shown is general and may need to be adjusted in the field.
- 17. When sawing or drilling concrete or masonry, use saws that provide water to the blade. Do not allow the slurry produced by this process to be tracked outside of the immediate work area or discharged into the sewer system.
- 18. Adjust all curb stops, valve boxes, maintenance hole castings, catchbasin castings, cleanout covers, and similar items to finished
- 19. Install all pipe with the ASTM identification numbers on the top for inspection. Commence pipe laying at the lowest point in the proposed sewer line. Lay the pipe with the bell end or receiving groove end of the pipe pointing upgrade. When connecting to an existing pipe, uncover the existing pipe in order to allow any adjustments in the proposed line and grade before laying any pipe.
- 20. Obtain and pay for all permits, tests, inspections, etc. required by agencies that have jurisdiction over the project. The Contractor is responsible for all bonds, letters of credit, or cash sureties related to the work. Execute and inspect work in accordance with all local and state codes, rules, ordinances, or regulations pertaining to the particular type of work involved.
- 21. Obtain permits from the City for work in the public right-of-way.
- 22. Construct sanitary sewer, watermain, and storm sewer utilities in accordance with the Standard Specifications for Sewer and Water Construction in Wisconsin, Sixth Edition, or the latest revised edition.
- 23. Coordinate all existing utility abandonment with the City of Oconomowoc. Perform all work in accordance with all City requirements.
- 24. All proposed on site utilities are private and will be maintained accordingly.
- 25. Install all pipe with the ASTM identification numbers on the top for inspection. Commence pipe laying at the lowest point in the proposed sewer line. Lay the pipe with the bell end or receiving groove end of the pipe pointing upgrade. When connecting to an existing pipe, uncover the existing pipe in order to allow any adjustments in the proposed line and grade before laying any pipe. Do not lay pipes in water or when the trench conditions are unsuitable for such work.

## WATER DISTRIBUTION SYSTEM:

- 1. Bring all site utilities to 5' outside of the building line with the exception of the water service. Extend water service into the building and up to the flange for the water meter.
- Separation of Water and Sewer: Provide a minimum horizontal separation of 10 feet between all water and sewer lines. Provide a minimum separation of 18 inches at all water line and sewer line crossings.
- Watermain Depth: Maintain 6.0 feet of cover over the top of the water lines to the finished grade. Verify elevation of proposed and existing water lines at all utility crossings. Install the water lines at greater depths in order to clear storm sewers, sanitary sewers, or other utilities as required. Include costs to lower water lines in the base bid.
- 4. <u>Disinfection</u>: Disinfect all completed watermains in accordance with AWWA Standard C651. If the tablet or continuous feed methods are used, disinfect using with water that contains at least 50 ppm of available chlorine. Retain the treated water in the pipeline for at least 24 hours. Measure the chlorine residual at the end of the 24 hour period. The free chlorine residual smust be at least 10 mg/l measured at any point in the line. Measurement of the chlorine concentration at regular intervals shall be in accordance with Standard Methods, AWWA M-12, or using appropriate chlorine test kits.
- 5. Testing: Pressure test and perform bacteriological tests on all water lines under the supervision of the City Public Works Department. Notify the City at least 24 working hours prior to any testing. Pressurize the waterline to 1034-kPa (150-psi) gauge pressure (measured at the point of lowest elevation) by means of a pump connected to the pipe in a satisfactory manner. Maintain the test pressure for a minimum of 2 hours. Do not add water to the watermain in order to maintain the required pressure during the water main pressure testing. The test section of pipe is acceptable with a pressure drop of 14 kPa (2 psi) or less.
- 6. Use mechanical joint restraint devices for joint restraint on all watermain bends having a vertical or horizontal deflection of 22-1/2 degrees or greater, all valves, stubs, extensions, tees, crosses, plugs, all hydrant valves, and all hydrants in accordance with City requirements. Use "Series 1100 Megalug"

manufactured by EBAA Iron Inc., Eastland, Texas, or approved equal, installed in accordance with manufacturer's recommendations for restraint on Ductile Iron

**LEGEND** 

ET

WATER MAIN CONSTRUCTION MUST COMPLY WITH THE

"SPECIFICATIONS FOR WATER MAIN & SERVICE LATERAL

MATERIALS AND THE INSTALLATION OF WATER MAIN &

APPURTENANCES FOR WAUKESHA WATER UTILITY, CITY

OF WAUKESHA" DATED AUGUST 29, 2014.

- PROPERTY LINE

PROPOSED 18" CURB & GUTTER

PROPOSED STORM SEWER LINE

PROPOSED WATER MAIN

PROPOSED HYDRANT

PROPOSED TELEPHONE

PROPOSED ELECTRICAL LINE

EXISTING SANITARY SEWER

EXISTING ELECTRICAL LINE

EXISTING OVERHEAD WIRING

EXISTING TELEPHONE LINE

EXISTING FIBER OPTIC LINE

EXISITNG GAS LINE

EXISTING HYDRANT

EXISTING GATE VALVE

EXISTING STORM SEWER MANHOLE

EXISTING GAS METER AND VALVES

CONTRACTOR SHALL PROVIDE EROSION CONTROL FACILITIES

IN ACCORDANCE WITH THE CITY OF WAUKESHA

WRITTEN CONSENT OF R.A.SMITH NATIONAL

EROSION CONTROL ORDINANCE. THE WISCONSIN DNR

STORMWATER CONSTRUCTION AND POST CONSTRUCTION

TECHNICAL STANDARDS, WDNR PERMIT CONDITIONS, AND

THESE DOCUMENTS: THE MOST STRINGENT TO APPLY.

R.A.SMITH NATIONAL ASSUMES NO RESPONSIBILITY FOR

DAMAGES, LIABILITY OR COSTS RESULTING FROM CHANGES OF ALTERATIONS MADE TO THIS PLAN WITHOUT THE EXPRESSED

THE LOCATIONS OF EXISTING UTILITY INSTALLATIONS AS

Milwaukee2/4/2a-64541 259-1181

Hearing Impaired TDD (800) 542-2289

www.DiggersHotline.com

SHOWN ON THIS PLAN ARE APPROXIMATE. THERE MAY

BE OTHER UNDERGROUND UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

EXISTING STORM SEWER INLETS

EXISTING STORM SEWER

EXISTING WATER MAIN

PROPOSED GAS LINE

PROPOSED VALVE

PROPOSED SANITARY SEWER LINE

- 7. At all valve locations which require a 12" or smaller valve, install gate valves which are of the compression resilient seated (CRS) type. Use American Flow Control's Series 2500 Ductile Iron Resilient Wedge Gate Valve, or approved equal. Gate valves shall conform to AWWA C509. Install cast iron valve boxes conforming to ASTM A48 at each valve location. Valve boxes shall be the three-piece type with 5-1/4" shafts. Use Tyler 6860-G with No. 6 base, or equivalent. Valve boxes shall have at least 6" of adjustment above and below finished grade. Drop covers on valve boxes shall be round and bear the word "WATER" cast on the top. Use Tyler 6860—G "Stayput" covers with extended skirt, or equivalent.
- 8. Use Mueller H 10300 or Ford EM 2 7057, or approved equal, at all curb stop locations. Stationary rod is required on all curb stops.
- 9. Polyvinyl Chloride (PVC) Building Water Services: ASTM D2241 or ASTM D1785; pressure rated for water.
- 10. Polyvinyl Chloride (PVC) Watermain: Use AWWA C900 for all PVC watermain furnished with integral elastomeric bell and spigot joints; minimum pressure Class 150; dimension ratio not greater than 18; laying length 20 feet. Use EBAA Iron, Inc., "Series 2000 PV Megalug," or approved equal for restraint on C900 PVC watermain. Lay trace wire with all C900 PVC watermain.
- 11. <u>Tracer Wire</u>: Locating requirements a means to locate buried underground exterior non metallic sewers/mains must be provided with tracer wire or other methods in order to be located in accord with the provisions of the Wisconsin Statutes 182.0175(2r) and the Wisconsin DSPS 382.30(11)(h).



KWIK TRIP, Inc. P.O. BOX 2107 1626 OAK STREET

EXISTING SANITARY SEWER MANHOLE LACROSSE, WI 54602-2107 EXISTING LIGHT POLES PH. (608) 781-8988 EXISTING ELEC. AND TELE. PEDESTALS FAX (608) 781-8960

## R.A. Smith National

Beyond Surveying and Engineering

16745 W. Bluemound Road, Brookfield, WI 53005-5938 262-781-1000 Fax 262-781-8466, www.rasmithnational.com

PRELIMINARY

CONSTRUCTION

Appleton, WI Orange County, CA Pittsburgh, PA

SCONSIN TORE  $\leq$  $\triangleleft$  $\bigcirc$ SE Z DE  $\equiv$  $\bigcirc$ MITH NO O  $\overline{\bigcirc}$ 

DRAWN BY RASN GRAPHIC PROJ. NO. 3|404|0 04-13-2015

NO. DATE DESCRIPTION

SHEET